

**Intervention  
to  
The Nunavut Water Board**

**Regarding the Matter  
of  
The City of Iqaluit's (Type A) Water License  
Renewal Application**

**Final Public Hearing - March 2006**

**Submitted by:**

**Department of Environment, Environmental Protection Service,  
Government of Nunavut**

## Executive Summary

The City of Iqaluit has presented an enormous amount of information for their Water License Application. The information is comprehensive and addresses many of Department of Environment's (DOE) concerns with regard to their operations, both current and proposed.

Nevertheless, a few of the options suggested by the City have never before been attempted in Nunavut, and therefore cannot be considered as "demonstrated technologies". The City should therefore be required to clarify their intent and to provide additional details pertaining to these unproven technologies.

The Spill Contingency Plans (general & lift stations) are generally complete and in accordance with the Nunavut *Spill Contingency Planning and Reporting Regulations*, as well as the Draft NWB *Guidelines for Spill Contingency Planning*. It is recommended that the City also prepare spill contingency plans for the existing lagoon, upcoming wastewater treatment plant and access valves, among others.

The City has chosen a wastewater treatment option – activated sludge – that appears to be technically sound and further, is a widely-used and a proven technology. The City's sludge management plan provides a comprehensive review of the various technologies that can be employed to manage the sludge which is a by-product of the wastewater treatment plant process. Nevertheless, it is suggested that the City consider other options such as using a technology which will result in the production of a useful product – e.g. compost – as opposed to one which must be disposed of in the landfill.

One of DOE's main concerns with this application pertains the paucity of information regarding the short and long term management of the existing sewage lagoon. In particular, DOE is concerned that the well-documented (as expressed in many technical studies) requirements for repairs and upgrades appear to have been ignored. Alternatively, there does not appear to be a comprehensive plan for decommissioning the lagoon, should this become necessary. Given that the lagoon will continue to serve as the City's only wastewater treatment facility until such time as the new wastewater treatment plant is operational and given that it might be kept in place as a back up system for the new treatment plant – an idea which DOE advocates – it is therefore recommended that the City prepare a plan, with time lines, for managing the existing sewage lagoon.

DOE finds the *Solid Waste Facility Operations and Maintenance Manual*, to be sufficiently detailed and its directives technically sound. It is recommended that the City implement the directives contained within this Manual as soon as possible.

At the time of compiling this intervention, information pertaining to the West 40 “landfill” expansion, runoff/leachate works, and leachate disposal/treatment, was not received by DOE; save for a meeting between the City and environmental regulators on February 2, 2006.

The City should be required to submit a long-term solid waste management plan within four years of the issuance/renewal of the water licence, for review and approval by the NWB.

With regard to the contamination of the area of the City known as “Lower Base”, the City of Iqaluit should be required to provide a management plan for contaminated soil and water before any further excavation occurs in this area or any other area of the City where the presence of contamination is suspected.

The City should be required to submit, for review and approval, Abandonment and Restoration Plans for those facilities which are under their control and which were/are part of their daily operations and which have been, or are intended to be decommissioned/closed down.

Overall, DOE does not have any serious concerns with respect to the City of Iqaluit’s operations nor with this licence application. DOE acknowledges that the City has come a long way over the past 10 years, particularly in the area of solid waste and hazardous waste management, and is therefore commended for the improvements that they have made to their operations. Nevertheless, much work remains to be done: there are many aspects of the City’s operations where there is room for improvement.

# City of Iqaluit Water License Renewal - Comments & Recommendations

## Legislative Authority

The Department of Environment (DOE), Government of Nunavut, derives its regulatory mandate from the *Environmental Protection Act* (EPA). The EPA essentially prohibits the discharge of a contaminant into the environment, except under certain regulated terms and conditions as dictated (as in a Water Licence) by Federal or Territorial Legislation.

A contaminant is defined as: *any heat, noise, vibration, or substance that, when discharged into the environment:*

- *endangers the health, safety or welfare of persons,*
- *interferes or is likely to interfere with normal enjoyment of life or property,*
- *endangers the health of animal life, or*
- *causes or is likely to cause damage to plant life or to property;*

In reviewing Water Licence Applications, DOE observes, in addition to the EPA, a number of Regulations and Guidelines that have been adopted under said EPA. These regulations and guidelines include, but are not restricted to, *Spill Planning and Reporting Regulations; Environmental Guideline for the General Management of Hazardous Waste; Environmental Guideline for Industrial Projects on Commissioner's Lands; Environmental Guideline for Industrial Waste Discharges* and the *Environmental Guideline for Site Remediation*.

The reviewers believe that the above-mentioned guidelines will assist proponents to tailor their projects in such a manner that they will be in compliance with the various pieces of environmental legislation that govern development activities in Nunavut; including Water Licence activities. The reviewers advise the City to contact DOE for further details.

## General Opening Comments

The reviewers have tried to avoid being onerously prescriptive in providing comments and suggestions for this Water Licence Application. In many cases, DOE is offering constructive advice which is not intended to be included in the terms and conditions of the Water Licence, but is directed at the City for their consideration. Nevertheless, the City is advised that by observing DOE's suggestions, they will be demonstrating "due diligence" for purposes of compliance with the GN's *Environmental Protection Act* should any future mishaps occur.

Where DOE is recommending that an item be included in the terms and conditions of the Water Licence, we will specifically indicate as such.

One final comment and this is regarding the NWB's ftp site and the City of Iqaluit's Water Licence Application and back up documents:

Notwithstanding that NWB provided reviewers with an excel spreadsheet with a list of all Iqaluit Water Licence documents, the ftp site for this particular application is extremely difficult to navigate. In some cases – as with the spill plan – we were unable to open certain files. One of DOE's consultants counted over three hundred separate documents on the site, all of which are contained within a confusion of directories, sub-directories and sub-sub directories. Information and updates provided by the City of Iqaluit are spread out over a long period of time and have been submitted in a piece-meal fashion. It reached a point where reviewers were unsure as to what it was they were expected to examine. It would have been far easier to assess this Application had all of the information been placed in a single directory specifically identified for this current Water Licence hearing.

Furthermore, the reviewers believe that it would have been very helpful had the City of Iqaluit been required to re-submit their application in its entirety, complete with back up documents re-written to incorporate the most up to date information.

DOE appreciates the difficulties experienced by both the NWB and the City of Iqaluit, therefore, the above comments are offered respectfully and as constructive criticism for future reference. In the final analysis, it is in the best interests for all concerned if the evidence presented by the proponent is easy to examine and most importantly, readily accessible.

## **1. Application**

**Supplementary Questionnaire for Municipalities, dated November 24, 2004.  
Updated & posted on June 13, 2005.**

### pp. 6. Section III. Water Supply - Modifications

- Water supply system modifications of 2004 have been updated in this section of the document, however, changes are not reflected on pp. 24, Section IX. Technical Information - Water Treatment.

pp. 12. Section V. Solid Waste Disposal - Modifications

- The planned expansion of the solid waste disposal facility (West 40) is not included. ***The City should be required to submit this information, at a time convenient to the NWB, for review and approval. This should be included in the terms and conditions of the Water Licence.***

## **2. Spill Plan**

*It should be clearly understood that DOE-EPS' review and/or acceptance of the spill contingency plan does not absolve the City of Iqaluit from their responsibilities pertaining to the proper management of the hazardous materials under their control.*

### **Sewage Lift Station Spill Contingency Plan, by Dillon Consulting Limited, dated April 1, 2003 & updated June 2005: Appendices**

- This does not appear to be available on NWB ftp site (under 'June 2005 Submissions'). Please ensure that this information is attached to the original spill plan.
- Information contained within the appendices should be available to operators & emergency personnel at all times.
- Appendix C, Spill Form, should be updated with the newer Nunavut (English & Inuktitut) Spill Report Form. DOE will provide a copy upon request.
- Personnel training records should also be part of this Spill Plan.

### **City of Iqaluit Spill Contingency Plan, by Dillon Consulting Limited, updated November 2004.**

pp. 2-1. Section 2.0 Reporting Procedures

The 2nd paragraph, states: "Spill Report Personnel will provide direction and will ensure that an investigation is undertaken".

- *It should be understood that the spill line does not provide directions for the management of spilled and/or contaminated material. It is the City of Iqaluit's responsibility to develop a complete plan which addresses the steps to be taken from the start of the spill, up to and including the final clean up and disposal of the contaminants. Regulatory agencies such as DOE, Indian and Northern Affairs Canada (INAC) and Environment Canada can review the final plan to assess its adequacy and provide advice at that time. Regulatory agencies can, and have, provided information and advice in emergency situations, however, these agencies*

*should not be included in a spill plan as routine advisors.*

#### General Comments on this Section

- All references to the GNWT-RWED and/or GN-DSD should be changed to GN-DOE
- All references to the GNWT (where applicable) should be changed to “GN”.

#### pp. 7-1. Section 7.1 Spill Equipment Inventory

- This list needs to be updated to include spill response kits and current heavy equipment inventory.

#### pp. 7-2. Section 7.2 Resource Contact & pp. 6(?). Appendix B. Sewage Lagoon Preparedness Plan. 6.2 Resource Contacts

- On the 3rd column ('Resource provided'), the 24-Hour Spill Report Line, should read '*Responsible for contacting the appropriate regulatory agency*'. The Spill Line functions primarily as a switchboard/central repository for spill incidents.

#### pp. 6. Appendix B. Sewage Lagoon Preparedness Plan. 6.1 Spill Equipment Inventory

- The list needs to be updated to include spill response kit and current heavy equipment inventory.

#### Appendix D. Spill Report Forms

- It is suggested that the City obtain an updated Nunavut (English & Inuktitut) Spill Report Form.

#### Appendix E. MSDS Sheets

- MSDS should be regularly updated and further, should not be older than 2 years.
- Several MSDS require safety gear & neutralizing agents for handling specific chemicals in case of spills. Personnel should have available, appropriate and chemical-specific safety gear and should further be trained on how to use it. Neutralizing agents should be readily available in the event of accidents.

#### Additional Comments

- The City should provide a description of the spill response training, if any, that personnel have received. This information is useful to regulatory agencies in that it allows them to determine how well-prepared a proponent is to deal with spills of

hazardous materials. Proper training of the spill response crew is one of the key elements of an effective and efficient response plan.

- DOE recommends that City of Iqaluit personnel be provided with basic spill response training; preferably the type of training which provides practical, hands-on exercises.
- Personnel training records should also be part of this Spill Plan.

### **3. Waste Disposal - Sewage**

#### **Letter from City of Iqaluit to NWB, on Submission of Additional Information, dated June 1, 2005.**

##### pp. 2. Numeral 9 - Wastewater Treatment Plant (WWTP)/Sewage Lagoon Contingency Plan

For the purpose of this review it has been assumed that a conventional secondary activated sludge treatment plant is to be used (as per Supplementary Questionnaire, Section IV. Sewage Disposal, Modifications, page 8). This is further clarified on page 2 of the same letter, where it is indicated that the WWTP will be built in 2 phases (Phase 1 including primary treatment, and Phase 2 including secondary treatment and capacity expansion).

- Will the wastewater treatment plant, as built according to Phase 1 specifications, be in compliance with the effluent quality requirements?

##### pp. 3. Numeral 9 - Wastewater Treatment Plant (WWTP)/Sewage Lagoon Contingency Plan

On page 3, Paragraphs 1 & 2, it is stated that the existing lagoon will be kept in use until the first phase of the WWTP is commissioned, and that the City will prepare an abandonment and restoration plan for the lagoon. Furthermore, the requirement for a "Sewage Treatment Contingency Measure Plan" was identified by the NWB as a "major information gap" in the City's application (page 3, Section 2). This was conveyed to the City by the NWB in a letter dated May 31, 2005.

- It is DOE's understanding that the current system (the lagoon) needs to be operational until the WWTP is commissioned and operational. Nevertheless, the information thus far presented is rather unclear on what steps if any, will be taken to address the existing deficiencies of the lagoon (e.g. seepage, berm integrity). The City of Iqaluit should expand on this.



Recommendations have been made in different technical studies pertaining to this issue, but there does not appear to be a clear plan within the information submitted for this Application, on how to properly manage the lagoon: either the main wastewater treatment facility or as a 'back up' for the proposed WWTP (as suggested on pp. 14 of the 'Draft Conceptual Design Report Iqaluit WWTP Conversion & Expansion' of May 2004, by Earth Tech).

- ***The City of Iqaluit should be required to draft a plan, for review and approval, to manage the existing lagoon, including, but not restricted to:***
  - < ***Measures to be taken in the event of an accidental release (Contingency measures)***
  - < ***Plan for repairs/upgrades to the lagoon (as identified in the various lagoon reports)***
  - < ***Abandonment and decommissioning plan, including provisions on how to manage lagoon sludge.***

***This should be included in the terms and conditions of the Water Licence.***

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**Sewage Sludge Management Plan, City of Iqaluit, Draft Planning Report, by Earth Tech, dated December 13, 2005.**

pp. 10. Figure 3.1 - Iqaluit Sludge Management Planning

This section indicates that the amount of biosolids outlined in Phase 1 for the Primary Filter is 1,720 L/Day; which is approximately 1.7 m<sup>3</sup>/day; on pp.41, Section 7.1 *Sewage Sludge Composition and Volumes*, states that the amounts of primary sludge "produced from a future population of over 8,000 (in the year 2020) is expected to be ...1.8m<sup>3</sup> - 2.0m<sup>3</sup> [per day]".

These amounts are smaller than the 2.4 - 5.8 m<sup>3</sup>/day for dewatered sludge, as presented in the Mass Balances (Figures 3-10) of the *Draft Conceptual Design Report Iqaluit WWTP Conversion & Expansion* of May 2004, by Earth Tech. Note: the mass balances presented in the May 2004 Report do not present data for the primary sludge.

Discrepancies in the estimated amount of sludge will have a significant impact in the implementation of whatever sewage sludge management option the City chooses to employ.

- It is suggested that the City review the estimated amounts of biosolids and use conservative figures for the sludge management plan.

#### pp. 31. Table 5.3 - Detailed Evaluation of Screened SSMTs

It is not clear to DOE how the City arrived at the ratings (from 0 to 4) for the various options for screened technologies. For example, under “Technical Criteria - Proven and Reliable Technology”, a weighting of '3' (Very good) is assigned to Air Drying. This appears to be contradicted by Appendix A, A Peer-reviewed Article on "Natural Sludge Dewatering", which seems to suggest that air drying technology is still in the experimental phase.

Also under the same category in Table 5.3, a rating of '1' (Fair) is assigned to “In-vessel Composting”. Yet, “in-vessel composting” is a well developed and widely used technology.

Without further clarification on how the City arrived at their assignment of ratings, it would appear that the results of the detailed evaluation might have been biased towards air drying.

- Clarification of the assignment of ratings is strongly recommended.
- The City should, in assigning its ratings, consider the possibility that the screened technologies might also require infrastructure (e.g. roofed areas for outdoor drying beds as was suggested in Appendix A; particularly to deal with drift snow and the need for snow removal from the surface of the bed).

#### pp. 42. Section 7.2 - Application of Highest Rated SSM Option

The second Paragraph states that "*following de-watering ...composting might provide stabilization...*".

- Is this a suggestion that composting might follow after de-watering/drying?
- If not, what would be the final disposal option for the dried sludge?
- It is suggested that the City review other options such as “trench composting” in an enclosed building. This composting technology has been successfully employed in towns similar in size to Iqaluit, and in similar environments. The City is referred to the following website for examples of this technology: <http://www.transformcompost.com>

#### pp. 44. Figure 7.1 - Unlined Freezing Drying Bed

It is assumed that for the initial phase of biosolids production, the quantity to be treated will amount to 1,700 litres/day ( pp. 10), which is equal to about 620 m<sup>3</sup> per year. This is to be spread out in a 20 cm to 40 cm (deep) layer which requires area of between 1,550 m<sup>2</sup> to 3,100 m<sup>2</sup>. This represents a significantly large piece of land that must be set aside

for the drying bed: roughly 30 x 50 metres to 30 x 100 metres for the sludge alone; not even considering interceptors and access areas.

As previously indicated, the amount of sludge to be treated will have a significant bearing on the design of the drying bed (if that option is chosen). Furthermore, the drying bed will need to expand according to the plant expansion. In other words, for Phase 2, more sludge will be produced and more land will be required for the drying bed.

- DOE strongly recommends that the City undertake a thorough review of this aspect of the WWTP and run calculations on how much land is required for the drying beds vs. how much land is available for this purpose.
- Presumably in the area known as the West 40 area will suffice for the needs of Phase 1 & 2. Can the City verify this?

#### Additional Comments

- The document does not make it clear as to what portion of the sludge (to be managed), is comprised of solids (e.g. 4 -10% for typical sludge vs. 25 - 35% for de-watered sludge). The percentage-of-solids content will have an impact on the effectiveness of the sludge management technology of choice.
- There is a significant difference for the weather conditions described in Appendix A as compared with the ambient conditions expected for Iqaluit. For example, Figure 5 of Appendix A (pp.7) reveals that there were about 7 months where the air temperature in Lovanger/Sweden was above freezing; whereas in Iqaluit, the air temperature was below freezing for 8 months (pp.3). DOE is curious to know if the City has taken this into consideration and whether or not this will have an impact on the applicability of freezing/thawing/drying technologies in Iqaluit.

## **4. Waste Disposal - Solid Waste**

**Solid Waste Facility Operation & Maintenance Manual, by Dillon Consulting Limited, dated May 18, 2005.**

#### pp. 11. Section 2.2.5 Runoff Management

- DOE strongly urges The City of Iqaluit to implement the drainage improvement works as soon as possible.

pp. 25. Section 3.6.1.2 Non-accepted Waste

- DOE notes that sewage treatment plant sludge is listed as “non-accepted wastes” at the landfill. Unless there is special provision for its treatment and/or disposal how will this affect the City's sludge management plan?

pp. 32. Section 3.6.5.3 Hazardous Waste Storage, Emergency Response Plan

- DOE advises the City that they will have to develop an emergency response plan that will address any potential accidental release or burning of hazardous wastes.
- It should be noted that if the City intends to store hazardous waste on site for 180 days or more, they will be required to register with DOE-EPS as a hazardous waste storage facility. Registration is free but requires the City to fill out a questionnaire/form. The City is referred to the *Environmental Guideline for the General Management of Hazardous Waste*, for further details. DOE will provide a copy of this Guideline upon request.
- The reviewers suggest that, in addition to the territorial legislation already listed, the City should consult the following documents, all of which can be provided to them upon request:
  - < Environment Canada (Tilden & Westerman). 1990. *Guidelines for the Preparation of Hazardous Material Spill Contingency Plans*.
  - < Government of the Northwest Territories. 2004. *Guideline for Industrial Waste Discharges in the NWT*.
  - < Government of Nunavut. 2002. *Environmental Guideline for Waste Solvents*.
  - < Government of Nunavut. 2002. *Environmental Guideline for Waste Paint*.
  - < Government of Nunavut. 2002. *Environmental Guideline for Waste Batteries*.
  - < Government of the Northwest Territories. 2004. *Guideline for the Management of Waste Asbestos*.
  - < Government of Nunavut. 2002. *Environmental Guideline for Dust Suppression*.
  - < Government of the Northwest Territories. 2004. *Guideline for the Management of Waste Lead and Lead Paint*.
  - < Government of Nunavut. 2002. *Environmental Guideline for Waste Antifreeze*.
  - < Indian and Northern Affairs Canada. 2005. DEW Line Cleanup Barrel Protocol

pp. 35. Section 3.8 Safety Considerations

- The City's O&M Manual should include (where applicable) a list of staff and what, if any, hazardous materials management training they have received.

pp. 36. Section 3.9 Runoff Monitoring Procedures

*"All leachate...shall be collected periodically...and dumped on the sewage lagoon".*

Leachate from the landfill has been tested (PSC Analytical Services, July 9, 2004) and found to have substances (e.g. metals, BTEX) that are likely to have a detrimental effect on the lagoon.

- ***Leachate from the landfill must be collected, contained and treated in an appropriate manner. A leachate management plan should be submitted to the NWB for review and approval. This requirement should be included in the terms and conditions of the Water Licence.***

pp. 40. Section 5.0 Site Records

Site records are of great importance for the operation and future planning of the landfill site.

- DOE encourages The City of Iqaluit implement, as soon as possible, the directives of this O&M plan, particularly as it pertains to obtaining estimates of quantity and type of wastes entering the landfill. Also see pp. 26, Section 3.6.2.1 Reception Procedures.

pp. 45. Section 7.0 Emergency Response

Emergency response plans, training and awareness are of great importance for the safety of landfill personnel.

- The City of Iqaluit is encouraged to implement, as soon as possible, the directives of this O&M plan, particularly as it pertains to the training of personnel on WHMIS, TDG, Hazardous Waste Management, Emergency Response and First Aid.

Other

In general this O&M Plan is comprehensive. The City of Iqaluit is encouraged to implement the directives of this Plan as soon as possible. Personnel training records should also be part of this O&M Plan.

**Additional Comments**

Expansion of Current Landfill Site

Other than providing an indication that they need to expand to an adjacent site, because of the rapidly-diminishing availability of space at the current location, the City has not

provided any detailed information – that the reviewers are aware of – on this proposal. On February 2, 2006, City officials convened a meeting with local regulatory agencies to provide an overview of their plan and to request advice and information with respect to what measures they would be required to enact in order to satisfy environmental regulations. Several issues were discussed at this meeting including ownership of the proposed site. Officials from CG&S agreed to look into this matter. At the time of writing this intervention, the reviewers are not aware if ownership of the site has been established.

Of significance to DOE, the site into which the City wishes to expand, is underlain by an old military dump site, the contents of which are not known with absolute certainty, save for a report compiled by Royal Roads Military College (now defunct) of Victoria, BC. The City has requested that for purposes of monitoring runoff/leachate, that they be allowed to use the existing levels of contamination as their baseline and further, they only be held responsible for contamination above and beyond that which is already present.

Notwithstanding that DOE is uncomfortable with the idea of constructing a new landfill site on top of an old landfill site, DOE believes that this is a reasonable request given the extenuating circumstances.

Nevertheless, to reiterate DOE's verbal comments at the Feb 2<sup>nd</sup> meeting, the City of Iqaluit should be fully aware that the sampling and analysis undertaken at this old dump site in 1995 is far from comprehensive and that there are many constituents which might be present and which were not sampled for. The City would therefore be held responsible should these substances suddenly manifest themselves after the City has begun to use this site for solid waste disposal.

During the February 2<sup>nd</sup> meeting, the City indicated that they would provide environmental regulatory agencies with a written request for direction on this matter. A rough outline of their intentions was to be included with this request. At the time of compiling this submission, DOE has not received anything in writing from the City.

- The City of Iqaluit is advised, for their own protection, to conduct a detailed characterization of this site before assuming responsibility. DOE believes that the 10 year old report upon which the City is basing their analysis, is incomplete in terms of sampling parameters. The City should further note that such a characterization will not necessarily absolve them from responsibility for contaminants that might appear after they have commenced using the site in question.
- At the above-mentioned February 2<sup>nd</sup> meeting, the City of Iqaluit provided assurances that they intend to control and treat leachate and runoff from this site, should they be granted permission to expand into it. ***This requirement should be included in the terms and conditions of the Water Licence.***

## Long-Term Solid Waste Management Plan

- ***DOE recommends that the City of Iqaluit be required to provide a long-term, detailed solid waste management plan for review and approval within four years of the issuance/renewal of their Water Licence. This requirement should be included in the terms and conditions of the Water Licence.***

## **5. Water Source and Treatment**

### **Additional Comments**

The information required on as-built drawings and Dam Repair letter, has been submitted by the City of Iqaluit (See June 1st, 2005 letter to NWB). Nevertheless, the water sampling results (Numeral 5, pp. 2) mentioned in that letter could not be found on the NWB ftp site.

## **6. Abandonment and Restoration (A&R)**

DOE is puzzled by the City's submission which appears to be a copy of a 1995 Report by the Environmental Sciences Group of Royal Roads Military College. It is possible that a more up to date A&R plan is located elsewhere on NWB's ftp site, however, a thorough search of this site did not reveal anything to this reviewer.

DOE recognizes that the development of A&R plans for some of the historic impacted sites within the City Limits is an issue of concern to the City and that the City believes they should not be held responsible for sites which existed long before there was a City, or a Town or a Hamlet of Iqaluit (Frobisher Bay).

DOE concurs with this assertion but with caveats:

It is not unreasonable to expect that the City present A&R plans for those facilities for which they are clearly responsible, either directly or implied, and which were part and parcel of their daily operations. Examples of this include the current landfill, the previous landfill (aka "honeybag hill") and some areas within the North 40 where the City was, up until last summer, issuing permits and charging fees for gravel extraction; and further, where one of their contractors set up an asphalt plant. In the case of the asphalt plant, DOE understands that the City has ordered the contractor to remove their equipment and clean up the site. DOE supports this decision, however, the City should also recognize that they (the City) could still be held responsible for any contamination on that site that resulted from their contractor's activities.

- ***The City should be required to submit up to date Abandonment and Restoration Plans for those facilities over which they have control; which***

***were, or are, part of their day to day operations; and which have already or are intended to be decommissioned. A&R plans for these facilities should be submitted within four years of the issuance/renewal of the Water Licence or within a time frame acceptable to the NWB. This requirement should be included in the terms and conditions of the Water Licence.***

## **7. Lower Base Contamination**

The reviewers were, at first, reluctant to bring up this matter as its relevancy to the Water Licence might be viewed by the NWB as tenuous. Nevertheless, the issue of contamination in Lower Base was first brought to light as a result of excavations for purposes of installing water and sewer lines. DOE therefore believes that there is a direct correlation between this issue and the Water Licence. After consulting with an official from the NWB, it was decided that the subject of contamination in Lower Base should be included in DOE's submission, but limiting the scope to a discussion of impacts on water and on public health and safety.

Without getting into the details of the history of Lower Base, the evidence thus far gathered conclusively indicates that there is a problem with hydrocarbon contamination in the ground throughout this area. Investigations dating back to at least 1990 clearly point in this direction.

More recently, during the summer of 2005, when City contractors were installing water and sewer lines in Lower Base, they unearthed, in addition to old drums (and in one case, a truck transmission), large quantities of fuel-contaminated soil; some of which was subsequently spread over the surface of a residential neighbourhood. Complaints from residents about the strong smell of fuel are very well documented as were complaints from the workers about chest pains, difficulty in breathing and headaches from exposure to the fumes released as a result of the excavation. Furthermore, until Federal and Territorial Officials intervened, contaminated water from the trenching operation was being pumped directly into the ocean and contaminated soil was being sifted in the middle of a residential neighbourhood. At one point, the Worker's Compensation Board (WCB) halted the project for 10 days due to health and safety concerns for the workers on site.

DOE acknowledges that the City should not be held entirely responsible for historic contamination – believed to date back to the 1940's – in this area. In any case, the issue of responsibility is far beyond the scope of the present Water Licence Application.

Nevertheless, DOE believes that it is incumbent upon City officials to be mindful of this contamination before they commence any further excavation activities in the Lower Base area.



- ***The City of Iqaluit should develop and implement a management plan for contaminated soil and water before excavating in areas that are suspected to be, or confirmed, contaminated. This requirement should be included in the terms and conditions of the Water Licence.***

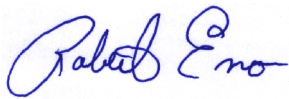
## **Closing Comments**

Overall, DOE does not have serious concerns with respect to the City of Iqaluit's operations nor with this Water Licence Application.

The City of Iqaluit has been for the most part, placed in the unenviable position of trying to manage infrastructure, some of which is well past its expiry date. The population boom, coupled with a high turnover rate in the engineering department (and subsequent lack of continuity and loss of corporate knowledge) over the past 15 years has only exacerbated this problem. Furthermore, the City has been forced to manage contamination and other issues that were not of their own making and that were inherited from a succession of previous occupants starting with the US Military in 1942. The reviewers suggest that the problems faced by the City of Iqaluit are unlike those faced by any other Municipality in Canada.

DOE acknowledges that the City has come a long way over the past 10 years – particularly in the area of solid waste and hazardous waste management – and is therefore to be commended for the improvements that they have made to their operations. Nevertheless, much work remains to be done: there are many aspects of the City's operations where there is room for improvement.

It is hoped that the comments and suggestions offered in this submission, will not only assist the NWB in updating and renewing the City of Iqaluit's Water Licence, but will further assist the City with meeting their goals.



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